TEMPOROMANDIBULAR JOINT DISORDERS

I. BACKGROUND

Temporomandibular Joint Disorders (TMD) has been defined as a collective term embracing a number of clinical problems that involve the musculature and/or the temporomandibular joint itself. Temporomandibular Joint Disorder (TMD) has been used to refer to a group of conditions that are often called TMJ by the public. Unfortunately, this imprecise term, TMJ, has been used by physicians and dentists as well to describe all of the myriad of pain problems that patients experience in association with the head, neck, jaws and muscles in this anatomical region of the body. This imprecision in the use of terms has led to a great deal of confusion. In an attempt to clarify this situation, the following definitions are presented:

There are two distinct categories of TMD:

1. Masticatory and cervical muscle fatigue/spasm/pain and dysfunction.

This is a specific term used to describe painful and debilitating extra-articular maladies of the head, neck, and jaws. These problems result from the abuse of the masticatory and cervical musculature secondary to abnormal parafunctional habits such as bruxism and clenching of the teeth in response to stress and/or myofascial pain. However, if not controlled or eliminated, these problems could, in some cases, cause intra-articular pathology.

2. Intra-articular biomechanical dysfunction.

This is a specific term used to describe the consequences of the pathologic entities that occur to the intra-articular structures of the TMJ.

The important distinction is that masticatory and cervical muscle pain and dysfunction is not primarily centered in the joint itself, whereas biomechanical dysfunction of the TMJ is directly related to the anatomy and associated pathology of the joint.

The health consequences of TMD can be devastating. Dependence on pain medications, decreased productivity, and disability are common. Most patients who have extra-articular TMD, fortunately, can be successfully treated and rehabilitated with a combination of rest, medication, change in habits, and an orthotic appliance. However, those patients whose cause of TMD is intra-articular pathology often cannot be treated successfully without surgical intervention.

II. DIAGNOSTIC CRITERIA - Masticatory and Cervical Muscle Pain And Dysfunction

A. Pertinent Historical and Physical Findings

Intermittent, generalized unilateral or bilateral dull, aching preauricular or auricular pain is usually the first symptom. Often this leads the patient to their physician or an otolaryngologist. This pain will frequently migrate to the temporal, cervical, and occipital regions.

Masticatory and cervical muscle origin pain (extra-articular) differs from the pain associated with intra-articular biomechanical dysfunction in that with intra-articular pain the pain is directly localized to the affected joint, rather than generalized to an area as is the pain associated with the extra-articular conditions. Also, with the intra-articular conditions, the pain is constant each time the patient functions the mandible.

The extra-articular patient will complain of decreased range of motion of the mandible. Often, this is worse in the morning upon awaking, particularly if the patient clenches and/or grinds (bruxism) their teeth while sleeping. Many times the patient will describe a sensation of their jaw feeling locked. This sensation usually goes away as they go about their daily activities.

These patients will also complain that their jaw feels tired and/or tight after functional motions associated with eating, chewing, or prolonged talking.

Often, joint noises such as clicking with function are described. Patients describe a feeling in their ipsilateral ear of a stuffiness as when going up in an airplane.

All of these symptoms in the extra-articular patient are intermittent daily, weekly, or monthly.

Physical examination is remarkable for tenderness to palpation over the muscles of mastication, particularly the deep masseter, anterior temporalis and its tendon and the cervical and occipital muscles to which the pain migrates.

There is usually no intrameatal tenderness to palpation, and there may or may not be evidence of joint noise on palpation or auscultation of the affected joint(s).

The patients will have a decreased range of mandibular function as demonstrated by measuring the opening pattern between the maxillary and mandibular incisor teeth on maximum opening. The patients will describe a tight sensation as they attempt this maneuver. Lateral excursion are decreased to the contralateral side, and protrusive excursion deviates the mandible to the affected side in unilateral cases.

B. Appropriate Diagnostic Tests and Examinations Suggested Sequence

1. Clinical Diagnosis is supported by these studies:

a. Imaging - plain or panoramic radiograph to determine that there is no gross articular bony pathology.

b. Differential diagnostic local analgesia blocks to determine extra- vs. intra-articular etiology of pain.

c. Trial dosage of medication such as NSAID or muscle relaxant.

C. Inappropriate Diagnostic Tests and Examinations

1. Masticatory or cervical muscle evoked potentials.

2. Trial doses of narcotic analgesics.

D. Supporting Evidence

Imaging is essential to the initial work-up of these patients to rule out the presence of incipient intra-articular biomechanical dysfunction pathology. Differential diagnostic blocks are helpful in complex cases in determining the primary site of the etiology of the problem as extra-articular or intra-articular so the treatment can be appropriately directed. Trial dosages of NSAIDS and/or muscle relaxants can be useful in determining etiology and thus dictate treatment.

III. Treatment

All treatment directly associated with masticatory and cervical muscle pain and dysfunction is done on an outpatient basis. There are occasions when the patient has such a tremendous psychological overlay that inpatient behavioral modification therapy is needed.

A. Appropriate Forms of Therapy

1. Medications

a. NSAIDS
b. Muscle relaxants
c. Sedatives
d. Antidepressants
e. Local analgesic trigger point injections

2. Orthotics

3. Physical therapy

a. Exercises
b. Ultrasound
c. Galvanic stimulation
d. Heat and cold packs
e. TENS
f. Iontophoresis

4. Diet modification

5. Psychological counselling

6. Relaxation therapy

7. Family therapy

B. Supporting Evidence

With the proper early diagnosis of masticatory and cervical muscle pain and dysfunction with identification of the etiology and its removal or treatment, the vast majority of these patients can be taught to manage this problem. Progression of this problem untreated can lead to biomechanical dysfunction in a small percentage of cases (5%).

C. Estimated Duration of Care

Extra-articular TMD is a management problem because there is no anatomical or pathological entity that can be repaired or removed. The basis of the problem is stress relieving patterns that lead to abnormal parafunctional oral habits that result in fatigue, spasm, and muscle pain.

D. Modifiers

Modifying factors are defined as factors that precipitate, aggravate, or alleviate the individual episodes of pain and dysfunction. Frequent precipitating factors include stressful situations, weather changes, and trauma. Frequent aggravating factors include tooth clenching and grinding and tension. Frequent alleviating

factors include heat or ice, rest, medications, massage, stretching exercises and relaxation.

IV. DIAGNOSTIC CRITERIA - Intra-articular Biomechanical Dysfunction

Biomechanical dysfunction of the TMJ can occur as the result of the following pathologic conditions:

1. Trauma

A. Pertinent Historical and Physical Findings

1. History of trauma
2. Physical evidence of fracture
3. Malocclusion
4. Mandibular dysfunction
5. Abnormal relationship of the jaw
6. Presence of a foreign body
7. Hemorrhage in external auditory canal
8. Laceration of external auditory canal
9. CSF in external auditory canal

B. Appropriate Diagnostic Tests and Examinations Suggested Sequence

1. Clinical Diagnosis is supported by these studies:

a. Imaging - Plain or panoramic radiograph to determine the nature and extent of the fracture and any displacement.

- CT Scan
- Tomogram

C. Inappropriate Diagnostic Tests and Examinations

a. Arthrogram
b. MRI
c. Arthroscopy

D. TREATMENT
Outpatient or Inpatient

1. Closed reduction in cases of:

a. Nondisplaced fracture of the mandibular condyle
b. Displaced fracture of the mandibular condyle
c. Medical contraindication for open reduction

2. Open reduction in cases of:

a. Fracture dislocation of the mandibular condyle
b. Mechanical interference with function by a condyle
c. Condyle fracture with loss of anterior – posterior and vertical dimension which cannot be managed by closed reduction
d. Compound fracture
e. Displacement of a mandibular condyle into the middle cranial fossa

E. Supportive Evidence

It has been well documented that with proper treatment, fractures of the mandibular condyle heal well.

F. Estimated Duration of Care

Early mobilization (2 - 3 weeks) is important to prevent ankylosis.

H. Estimated Return to Work

6 - 8 weeks

2. Internal Derangement

A. Pertinent Historical and Physical Findings

1. Earaches, headaches, masticatory or cervical myalgias
2. Clicking or popping of the joint
3. Locking of the joint
4. Restricted masticatory function
5. Restricted range of jaw motion
6. Imaging evidence of disc displacement and/or perforation
7. Arthroscopic evidence of internal derangement

B. Appropriate Diagnostic Tests and Examinations

Suggested Sequence

1. Clinical Diagnosis is supported by these studies:

a. Imaging - MRI
Arthrogram
b. Arthroscopy

C. Inappropriate Diagnostic Tests and Examinations

a. Imaging - any imaging that professes to show disc displacement by condylar position
- CT scan

D. Treatment

Outpatient or Inpatient

1. Arthrocentesis and/or manipulation of mandible
2. Arthroscopic surgery
3. Arthroplasty
a. Discoplasty with or without arthroplasty or discorrhaphy
b. Discectomy

c. Discectomy with insertion of autogenous graft

d. Discectomy with recontouring of the articular surface and placement of autogenous graft

e. Repair of perforated posterior attachment

4. Mandibular condylotomy
5. Orthognathic surgery
6. Orthotics
7. Physical therapy

E. Supporting Evidence

It has been well documented that with proper treatment, internal derangements of the TMJ do well.

F. Estimated Duration of Care

With surgery and post-operative physical therapy, 4 - 6 months.

G. Estimated Return to Work

6 - 8 weeks

PROTOCOL HISTORY:
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